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ABSTRACT

A multi-variable curricular model is applied to a total baccalaureate curriculum revision. The objectives of the evaluation, methods, and sources are given. The model can be used to examine how much additional power in decision making was gained by each set of variables at the model. (Author)

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A MODEL OF CURRICULUM EVALUATION

APPLIED TO A UNIVERSITY BACCALAUREATE PROGRAM

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A MODEL OF CURRICULUM EVALUATION APPLIED TO A UNIVERSITY BACCALAUREATE PROGRAM

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Curriculum development and evaluation reminds us of group sky diving. Many efforts must be made to decide on the appropriate target (goals) and you may get the airplane (grant) to help you get in a position to begin (take the big leap). There are a multitude of forces that will affect your progress toward the goals or target. You do have some limited number of strings you can pull to control your situation, but there may be forces beyond your control. You may find your group may never get together and all land off target, or if someone misjudges the time sequences or actions of others, disaster may occur. Curriculum development and evaluation today is frequently accelerated to a speed at which decisions come very rapidly forcing continual skilled fast action and reassessment of priorities. When a large number of persons are involved in an project, the communication and coordination problems increase as do the variables that should be considered.

The faculty of the University of Washington School of Nursing felt the need for a revised curriculum to prepare students for extended roles in nursing and the delivery of care in emerging health care systems. The last major revision of the baccalaureate nursing curriculum at the University of Washington was initiated in 1952 and implemented in 1959. Subsequently, the resultant changes in perceptions of the role of the nurse practitioners, the delivery of health care, the expansion of knowledge

and concerns about the adequacy of the current curriculum in meeting the desired educational goals, led the faculty to the decision that a curriculum grant was needed to bring about a curriculum revision. A grant proposal to support the curriculum revision, written in September 1970, was funded June 1, 1971.

This paper will present the beginning steps taken by the staff of the curriculum grant to develop and evaluate the school's proposed curriculum changes. Because it is felt that there are some fundamental issues in relation to curriculum evaluation which are the subject of much controversy, we believe that the evaluator must make some basic theoretical decisions before proceeding with his evaluation plan. For this reason a brief review of some of these issues will be addressed before presenting our activities in relation to evaluation. Because we are presenting an overview of a plan for evaluation of the change of a total baccalaureate program, time and space does not permit a large amount of detail on specific aspects. We hope to present detailed components in later papers. This paper will be organized into four major parts: Some Major Theoretical Issues in Curriculum Evaluation and Selection of an Evaluation Model; Factors Within Our Situation that Modify the Scope and Rigor of the Evaluation; Goals, Progress and Problems in Relation to the Model and Summary.

Some Major Theoretical Issues in Curriculum Evaluation and Selection of an Evaluation Model

Definition of Evaluation

There are numerous definitions of evaluation. Three examples

will be cited. First, one of the best analyses done on the inadequacies of the various definitions of evaluation is presented in the book written by the Phi Delta Kappa National Study Committee on Evaluation (PDK Study Committee) chaired by Daniel Stufflebeam (1971). The committee, after deliberating on the numerous inadequacies, developed a new definition of educational evaluation: "Educational evaluation is the (process) of (delineating), (obtaining), and (providing) (useful) (information) for (judging) (decision alternatives). (1971, p. 40). Second, Robert Rippey in an article which asks the question "Can Evaluation Research Be Integral to Innovation?" (1972, p. 45-58) cites many of the problems with the present conceptions of evaluation and concludes,

> At the moment, there seems to be no evidence that evaluation, although the law of the land, contributes anything to educational practice other than headaches for the researcher, threats for the innovators, and depressing test for journal issues devoted to evaluation. (1972, p. 46)

Rippey feels that the primary source of resistance to change is not economic or technical but is due rather to the effect change has on the roles of school personnel. For this reason he advocates a model of transactional evaluation which involves not only the protagonists and designers of the innovation but also a representative sample of persons likely to be affected adversely or disturbed by the consequences of the change. This transactional analysis is directed not only at program improvements but also at the analysis of organizational dysfunction as a result of change due to the threats to role stability. The transactional evaluation is carried out by a series of questionnaires administered to various involved groups and a series of decisions based on this information is then followed by more evaluation.

A third definition of evaluation is stated by Glass and Worthen:

> "Evaluation is the determination of the worth of a thing. It is the process of obtaining information for judging the worth of an educational program, product, procedure, or educational objective or the potential utility of alternative approaches designed to attain specified objectives."

Curriculum evaluators must make a decision about what definition of evaluation they will choose to endorse. We feel that Rippey's transactional evaluation and the definition of evaluation by Glass and Worthen could be seen as being subsumed under the PDK Staff definition. Rippey's transactional analysis is only one means of gathering data for judging alternatives, and one type of decision alternatives may be about the "worth of a thing." Because we view the PDK definition as broader and reflecting our view of what we are trying to accomplish, we will accept it as the definition to guide our evaluation efforts.

The Issue of Research Versus Evaluation

There is confusion in the minds of many as to what is research and what is evaluation. Glass and Worthen endeavor to differentiate carefully the similarities and the differences between research and evaluation. Readers are referred to their excellent work for elaboration of these points. Two of their statements seem especially helpful to the curriculum specialist working on evaluation problems.

> There is considerable confusion among investigators in education about the extent to which evaluators should explain ("understand") the phenomena they evaluate. A fully proper and useful evaluation can be conducted without producing an explanation of why a product or program being evaluated is good or bad or of how it operates to produce its effects. It is fortunate that this is so, since evaluation in education is so needed and credible explanations of educational phenomena are so rare.

When discussing the kinds of controls that can be used they later indicate: . . .

> It is enough for the evaluator to know that something attendant upon the installation of Curriculum A (and not an extraneous, "uncontrolled" influence unrelated to the curriculum) is responsible for the valued outcome. To give a more definite answer about what that something is would carry evaluation into analytical research. Analytical research on the non-generalizable phenomena of evaluation is seldom worth the expense (Glass & Worthen, 1972, p. 160).

One gains the impression from reading the Glass and Worthen article that you either decide you are going to do research or you decide you are going to do evaluation and then recognize and utilize the differences. It is our view that this impression is given because the major purpose of the article is to heighten the contrast of research versus evaluation. We find this helpful but are attempting to examine the major parts of the overall evaluation program to see if parts of that program are able to be and should be addressed as research. Therefore, we do not see our work as all evaluation or all research but rather we see the opportunity for some research within the overall evaluation context.

The Model of Evaluation

Numerous models of educational evaluation have been proposed. It is necessary to develop or select a model which best represents the course of action that the curriculum evaluators feel will further their evaluation. After a review of some of these models and thinking about how we planned to approach our evaluation, we have decided to use the PDK Evaluation Model as represented by William Gephart (1972, pp. 118-119). A schematic representation of this model is shown in Fig. 1. Gephart explains the parts of the model in the following manner:

> The evaluation model proposed has multiple levels. The first level is a continuous effort called "context evaluation." It serves planning decisions by determining congruence between the objectives accepted by the educational system and its actual accomplishments, as well

> as identifying those contingencies in the institution's environment that may detail additional objectives to be considered. At a second level is "input evaluation." It is undertaken when a decision to change is reached and it provides information that weighs the alternative ways of achieving the desired change. At the third level is "process and product evaluation." These come into being when an input alternative is selected for which insufficient information exists regarding its procedures, its effects, or both. This level of evaluation provides information on what events occurred and what they produced. The information in turn serves decision alternatives related to events that follow a field test of an approach to meeting a new objective. Such alternatives include : terminate the trial, recycle the trial with some modification and implement the procedures of the trial in the overall system (Gephart, p. 130).

We feel that the PDK definition of evaluation and Gephart's model raise some fundamental questions. If you say that "educational evaluation is the process of delineating, obtaining and providing useful information for judging decision alternatives," then how does this differ from the process of curriculum development or do we have a new marriage? Has there been a secret marriage for some years that we have just discovered? When this new definition is considered in view of Tyler's (1949) Basic Principles of Curriculum and Instruction several questions are raised. Was Tyler engaged in context evaluation when he looked at the society, the learners and the subject matter specialists? When he compares the objectives with the philosophy and learning theory was he using input evaluation as described in the PDK model? Were the concepts of continuity, sequence, integration and organizing principles criteria utilized in input evaluation? Did Tyler's section on evaluation in the last part of his book relate to process and product evaluation that feed data back into the context evaluation? All of this becomes even less distinct in our opinion if you use a definition of "the practical" for curriculum such as Schwab's (1970) which emphasizes decision making in the curricular process. One might

ask what these questions have to do with an evaluation program? If it is agreed that these definitions now bring about a high interaction or overlapping between the process of curriculum development and curriculum evaluation, then this interaction must be highlighted or some persons will say you are not describing your evaluation program but your curricular process. We view the process of curriculum development as a decision making process and will not in this paper attempt to clarify where we see the curriculum development process as distinct from curriculum evaluation as defined by the PDK Study Committee. The similarities and differences may be the subject for another session or paper.

The Range of Data that Should be Included in Evaluation

The list of things that one can study in curriculum evaluation varies considerably with the writers. A few of these suggestions are:

Student characteristics - values, perceptions, interests, achievements, attitude, aptitude, social background, intelligence, educational background, creativity and other process skills, job and activity experience, performance after graduation.

Faculty characteristics - values, educational background, perceptions of the administration or their profession or the school, faculty teaching skills and styles, work experience contribution to the profession and creativity.

Environment - space, lighting, multi-media equipment, offices, color, use of space, location, the social conditions that affect campus unrest or funding.

Curricular materials - the objectives, philosophy, theory of learning, course outlines, software.

Economic considerations - cost of materials, multi-media, cost of facilities, cost of time spent, faculty time spent.

Process of curriculum change - communication networks, decision makers, sequence.

As indicated above, the list of variables that one could consider and that have been judged to affect the performance of a student or groups of students in a given curriculum is extensive. Most current writings on curriculum evaluation advocate that you study a wider range of factors. In the end the evaluation program is usually a choice among many possibilities which is narrowed by time, economics, knowledge, values, skills and personnel as well as relevance to the problem.

The number and types of personnel that should be included in the evaluation

There are at least two parts to this issue - who should be studied and who should do the studying. At one extreme there are those who advocate the examination of effects on nearly everyone who could possible be affected by the proposed change. This would include persons such as: the parents, the students, faculty and administration. At the opposite extreme there are those who advocate studying just the learner. The second part of this issue concerns the composition of the evaluation team. Some advocate as ideal an evaluation staff which would include a writer, designer, and from six to ten people or relay teams of outside evaluation specialists who compare their independently gathered notes. As individuals involved in curriculum development, we recognize that some of these roles and functions would be highly desirable. We will try to remember to bring

these views into our next grant proposal as expert opinion on the personnel needed, but we are realistically not very optimistic about how much additional money these ideas will enable us to obtain.

Weiss in his introduction to the Curriculum Theory Net work Monograph on Evaluation states: "Much of the curriculum evaluation literature does not provide procedures that can be readily adopted or adapted nor does it offer concrete examples of actual evaluation studies." (1972, p.1) Later in closing comments, he states: "At this stage in the work of curriculum evaluation, there appears to be more written about the models (of evaluation) than accounts of their use in educational practice." (1972, p. 246) Perhaps when the difference between idealism and what most of us can achieve gets to be too great people either retreat from doing anything or refuse to share their realities because they are afraid ideal standards will be applied to their less than ideal situations. This leads us to the second major part of this paper.

Factors Within Our Situation that Modify the Scope and Rigor of the Evaluation

Limited grant funds

Our grant funds are limited in time and amount. To assist approximately one hundred faculty to revise a total nursing baccalaureate program our grant has one full time Director, a nurse with a Ph.D. in Curriculum and Instruction, one Assistant Director with post-master's preparation in Educational Anthropology, one nurse with a B.A. who spends ten hours a week in advising and ten hours a week working on grant data gathering, one half-time student research assistant, and two secretaries. The Director also teaches a 3-5 credit curriculum course to approximately 100 graduate students each year. We are the developers and the evaluators. More personnel were written into

the grant than were funded. The realities of the present age and our consultant visits to other schools convince us that we are in a better position than many. Even though we feel we have worked rapidly to get our philosophy, objectives and all course outlines developed by the second year of our grant, we still find that no class completing the new curriculum will graduate before our funds for this grant run out. We can only hope that by establishing a good evaluation system we will be able to secure another grant to continue this evaluation.

Time factors in the actual curriculum situation

It took from 1969 until the Fall of 1972 for our faculty to delineate and agree upon their terminal objectives, philosophy, curricular model, and course outlines. Once all of this was done it has to be reviewed by:

The Board of Health Sciences,

The University Curriculum Subcommittee on New and Revised Curriculum,

The University Curriculum Committee, and

The State Board of Nursing.

Providing all the necessary materials to all these groups and meeting with them took about four months even though not one group recommended any changes. The State Board of Nursing requires that all curricula that are new or revised must be approved by them six months prior to the admission of a first class and before any publicity can be released. We submitted our bulletin to the printers in January, and with good fortune it will be in the hands of high school students by March, so our first class in the new program can be admitted in the Fall of '73 and our first nursing content will be offered in Winter 1975.

--- And Noah though 40 days and nights were long!

If a curriculum change extends over a longer period of time, the curriculum materials may become outdated before the revision is completed. This is especially true if the profession is changing rapidly as is nursing. Good formative evaluation will reduce this danger. The longer the period of time the curriculum work is extended, the more extraneous variables can affect the changes and evaluation. Therefore, it is helpful to get the curriculum changed rapidly once it is known what is desired.

A short period of time for curriculum development and evaluation may not be an ideal situation either. When high production demands exist to be met in a short period of time with a limited staff, the staff may experience continual pressure to produce or refine curricular materials and coordinate curriculum production. At the same time they are supposed to be developing and incorporating a well thought out evaluation plan and selecting or developing baseline tests.

School and state budgets

In the opinion of all of our administrators, school and state budgets do not allow us enough money to run the current and proposed programs along side one another. Goodbye, hopes of experimental designs.

Consultation quests

Consultation funds in these grants are limited. If your consultants travel from some distance you can probably have two visits a year of two or three days. Or you can try to obtain excellent local assistance from consultants who can give a higher input of time for the same total expenditure of funds. Our grant allows us to pay about $100 per day which eliminates the possibility of engaging some consultants we might feel would

be beneficial to our grant. There are very few consultants in nursing who know nursing, curriculum development, and curriculum evaluation. Non-nurse consultants frequently find it difficult to deal with the professional content of nursing which may be divorced from their subject matter background.

Goals, Progress and Problems in Relation to the Model

The overall aim of the grant proposal was to promote a major revision in the curriculum on the basis of an evaluative analysis of the current program in order to more adequately prepare nursing students to meet health needs of society. Five specific grant aims were identified: 1) To state the needs our curriculum should try to meet; 2) to formulate a conceptual framework for curricular change; 3) to propose a revised curricular plan for the baccalaureate program in nursing; 4) to implement the proposed curricular plans, and 5) to evaluate the contribution of the new curriculum. These aims extend over time and include evaluation at context, input, process, and product levels. The first aim, to state the needs our curriculum should try to meet, addressed itself to the data of context evaluation needed for decision making and progression into input evaluation.

Context evaluation

Context evaluation, as described by the PDK Study Committee encompasses two major foci: 1) the forces within the environment indicating needs to be met, and 2) the problems blocking the fulfillment of these needs, both of which constitute the basic input necessary for the determination of the rationale for change (Stufflebeam, 1971, pp. 218-219).

Process of decision making - Dedicated to the "democratic" process of decision making, the faculty adhered to a process whereby small groups

of task forces, student panels, interdisciplinary groups, individual interviews and position paper presentations fed into workshops and ultimately total faculty discussion groups, providing input for decisions by total faculty numbering over 100. It soon became apparent that provision of freedom to individuals within the groups created problems of promoting optimal group process versus maintaining the rigors of effective evaluation. Obviously, decisions arrived at by such means were the subject of much discussion, and negotiation was often necessary.

Initial overview of the rationale for change. As a basis for decisions regarding the overall rationale for change in the context evaluation, the faculty began preliminary steps of data collection in 1969.

A school of nursing standing committee, the Faculty Steering Committee, served as an informing, coordinating and advisory working group in the initial planning for the curriculum revision. In order to identify the needs our curriculum should attempt to meet, a Task Force on Rationale for Curriculum Change was formed. A preliminary review of the literature in relation to these needs and the role of the nurse in meeting the health service needs of society was done by this task force. Thirteen generalizations were derived from supporting statements from the literature. These statements centered on health care, nursing, education, learning and students. It was the decision of the faculty in December 1969 to accept these statements as a basis for further discussion and a starting point for deliberation on philosophy statements.

A Task Force on Long Range Goals reviewed literature under the headings: Social Change and Health Services, Trends in Nursing Education, Functions

of the University, the Center for the Health Sciences and the School of Nursing, Long Range Goals for the School of Nursing and Goals for the Undergraduate Program, and made specific recommendations. These recommendations formed the basis for decisions made by the faculty to develop innovative ways for providing clinical experience which would be less expensive in the use of faculty time and more effective in providing competence in nursing skills. Deliberations provided additional input indicating the need to identify key concepts of nursing that influence the expected outcomes for graduates. The desirability of interdisciplinary courses, utilizing concepts of health care, was stressed and became the basis for later decisions to design interdisciplinary courses for inclusion in the revised curriculum.

Health care delivery. Because health care delivery was changing so rapidly, another Task Force on Health Care Delivery in the Future was formed in 1970 to provide additional input for context evaluation. Other disciplines in the health sciences were invited to participate in developing a report and contributions were received from a physician, a nursing service director, a pharmacist and twelve nursing educators and students. This material was discussed by all the faculty at a workshop in May 1971. Changes in population needs, expanding roles of the nurse, and networks of health care centers were reviewed. Increased awareness on the part of the faculty in regard to these considerations formed the basis for later discussions in regard to content of major areas of core in the revised curriculum.

In April 1970 a Task Force on Social Action was formed. This group of faculty and students focused upon relevant social issues and the nurses' role in regard to social action. Based upon their definition of social

action and curricular implications, a decision was made by the faculty to include a terminal objective in reference to the graduate as an agent of change and promote and extend educational experiences allowing the student to broaden her leadership skills throughout the program.

Because the extended role of the nurse was being rapidly modified, the faculty examined clinical specialization, where it should occur and what components within the baccalaureate curriculum would assist in the development of competent practitioners. As a result of these deliberations, the decision was made to provide for an intensive block of experience in selected special fields. Objectives of this component were to be carefully designed to allow for flexibility in anticipation of changing health care needs in the future.

Consumer views of health care needs and provisions. Because our rationale for curricular change indicated that the consumer was having more influence on the health care delivery system and because our approach to nursing has been consumer centered, a Task Force on the Consumer was formed in 1970 to study consumers' experience with nurses, the consumers' views of the future of health care delivery and the consumers' views of how nurses could be used differently. This task force interviewed eight groups of consumers from different socio-economic levels and put a questionnaire in a local newspaper. Input from these endeavors provided context evaluation materials for further deliberation at a faculty workshop. Views of consumers that nurses were capable of additional responsibility, which they hesitated to assume, provided input which corresponded to views of students and faculty and led to decisions concerning content such as the intensive experience in a special area, in the revised curriculum.

Evaluation of current curriculum plan. In addition to the input received, which indicated to our faculty some necessary directions to proceed in order to meet the needs of society and directions for nursing care providers in the future, the need was felt to evaluate the present curriculum plan in order to determine its effectiveness. To achieve this aim, a Task Force on Repetitions and Gaps was formed in October 1969. Because the task force members felt that nursing process was central to nursing education they decided to study the way in which the nursing process is taught and the variety of nursing care forms used. This study resulted in a comparative analysis of nursing care forms used, decisions to provide for a strong emphasis on nursing process in the revised curriculum and definition of terms used in the terminal objectives.

A student panel also presented their views of changes they would like to see included in the revised curriculum. Areas of content not previously stressed, such as alcoholism, drug abuse, first aid, emergency care, and research influenced subsequent decisions to incorporate areas of content in new course outlines.

Several other sources of information were available to evaluate the current curriculum plan. Follow-up studies of the graduates of the classes of 1962 and 1963 were published in Nursing Research (Brandt, 1967, pp. 50-60.) Following that report, data on the classes of 1962, 1963, 1964 and 1965 were obtained in 1968 and 1969 (Brandt, 1969). Similar initial testing patterns were found as additional classes (1964 and 1965) were evaluated. A second follow-up study of the 1962, 1963, 1964, and 1965 classes was done. Several implications for evaluation were drawn from the analysis of these studies. It was determined that the process of problem solving and the manner in which mental health and public health concepts were taught should

be evaluated. Students who progressed from fundamentals of nursing to medical-surgical nursing attained a higher level of achievement than students who progressed from fundamentals to maternal and child nursing and then to medical-surgical nursing, indicating the need to consider sequencing of courses in the revised curriculum.

Input Evaluation

The PDK Study Committee indicates that input evaluation includes the information needed to make decisions regarding how objectives may be stated operationally and the potential of the procedural design in meeting the objectives (Stufflebeam, 1971, p. 223). The second and third aims of the grant proposal, to formulate a conceptual framework for curriculum change and to propose a revised curricular plan for the baccalaureate program in nursing, and the fourth aim, to implement the proposed curricular plans, refer to decisions resulting from the input evaluation.

Conceptual framework. During the process of formulating a conceptual framework for curricular change, seventeen schools were asked if they would share their conceptual frameworks, objectives, philosophy statements, statements about learning, testing, research reports on their curriculum and course outlines. Materials shared by other schools were made available to the faculty. A Models Task Force worked with the Undergraduate Curriculum Study Committee to develop several programs on models and nine different theoretical types of curricular organizations were presented in a chart with a bibliography.

In contrast to some schools of nursing, the faculty did not wish to organize their curriculum around one major concept or one already developed theory. A number of conceptual models were drawn together in the decisions resulting in the total conceptual framework. A core content model with a

terminal quarter of nursing electives in relation to expanded roles or specialized nursing roles was adapted.

Course development. In order to organize the work on the development of core content, faculty members were asked to develop core content for the major areas which they had previously delineated. The following task forces, which included student participants were formed: 1) Human Development Theory, 2) Interpersonal Interactional Theory, 3) Nursing Process, 4) Dynamics of Illness, 5) Evolution and Future of the Health Care Systems, and Health Care Delivery Process and Patterns, 6) Research and Scholarship Skills, and 7) Social and Cultural Systems and Social Activist's Role in Health Care Changes. These task forces were to review ideas already proposed, encourage brainstorming to see if further topics, unit and sub-topics were needed, review the literature, review all previous course outlines and related material for additional ideas, review the philosophy, objectives and model already accepted and outline the actual course content and behaviors desired in relation to content. After some time and a monumental amount of effort, decisions were made regarding courses drawn up. These were reviewed by the faculty, modified, reviewed again and accepted by total faculty vote in September 1972. Similarly, sequencing of course content was proposed, reviewed and modified in order to provide the opportunity for students to gain maximized learning experience.

Assessment of staffing, time, budget requirements and availability of facilities for educational experiences are all necessary components of the input evaluation. These factors are currently being delineated and negotiated by appropriate committees, departments, and faculty members within the

School of Nursing. Additional use of media for instructional components in the revised curriculum is also being evaluated by the faculty. Decisions have yet to be made in these areas.

Test selection for data collection

In order to provide data for the product evaluation, a plan was designed for testing students and faculty in reference to specific characteristics. Decisions had to be made regarding the tests to be selected and the procedures to be followed. An intensive review of the literature was conducted in order to assess the relative merits of a variety of instruments measuring attitudes, characteristics, achievement and perceptions of college climate. A doctoral dissertation and a master's thesis provided some data on characteristics of our own students, and the selection of some of the instruments used in these reports was considered. It was decided that Robert Stern's Activity Index, College Characteristics Index, and Organizational Climate Index, the Myers-Briggs Type Indicator and Shostrom's Personality Orientation Inventory would be used for psychological testing. In addition, a biographical questionnaire was designed. Based on the information that over forty percent of the students entering the professional part of the program in the sophomore year are transfer students, and because of the difficulties encountered in attempting to identify which freshmen students will be in nursing, it was decided to test sophomore students as they begin their nursing experience and senior students just prior to graduation. Testing of sophomore students began in Fall 1972. In order to obtain comparable data on the faculty and minimize possible testing effects, the decision was made to test faculty with the Stern

Indices and a biographical questionnaire in Spring of 1973, to be repeated in Spring of 1976. Members of the faculty who are appointed after the Spring 1973 testing date will be evaluated at the time of their appointment. Difficulties encountered in connection with the process of testing provided additional data for the process evaluation. One of the areas of concern to the faculty in terms of the product evaluation was the collection of data in reference to rating of clinical performance. A review of the literature and consultation with knowledgable nurse educators failed to reveal any instrument yet developed to adequately measure this dimension. It was decided that such a measure would have to be designed.

In addition to the collection of data mentioned above, it was decided that student records would be reviewed and scores collected from the Washington Pre-College Entrance Examination, high school grades and previous college experiences. Assessment of student achievement was also planned through consideration of scores on such tests as Nursing State Boards and The National League for Nursing tests.

Process Evaluation

Process evaluation involves an assessment of the design and decisions made to implement the project. Process evaluation will be considered from five aspects: 1) evaluation of whether or not the curricular materials reflect the desired direction of change; 2) assessment of the testing program; 3) evaluation of the time and cost effectiveness of the revised curriculum; 4) assessment of the instructional methods selected for use; and 5) evaluation of the curricular process used to bring about the curriculum revision.

Curricular materials and direction of change

Curricular materials of the current and revised curricula will be rated by a panel of outside experts in relation to standardized forms and stated criteris. As a part of the formative evaluation, it is planned that content analyses will be used to determine the internal logical consistency among the philosophy, objectives, learning theory, content outlines and evaluation methods. Curricular materials will also be evaluated in terms of external standards answering questions such as the following: 1) Are levels of behaviors in the objectives consistent with levels of behaviors considered desirable by members of the profession? 2) Are all major areas of content felt essential by merber of the profession included? 3) Are changes in the direction and amount stated as desirable by the conceptual framework, the rationale for change and the decisions made by faculty? and 4) Is there flexibility in the curriculum to allow for change without major revision?

Testing program for students and faculty

In order to initiate the program of student evaluation, the proposal was reviewed by a behavioral science review board of the University. Since students may not be required to take the psychological examinations, the problem of maximizing participation was encountered. Although particpaion was high when class time was allocated for testing, it was considerally reduced when students were asked to volunteer additional time to complete the battery. Alternative plans to remedy this difficulty are being considered.

During the process of collecting data from student records several problems became evident. Transcripts and other sources of data were frequently not available in the School of Nursing files. They were found to be located in several areas on campus. In many instances the storage system made the process of retrieval extremely difficult. As there is no computerized record-keeping system making data readily available, it was decided that the redesigning of the system of record collection and storage within the school was indicated. Plans are currently under way to facilitate this process.

Time and cost effectiveness

Evaluation of the revised curriculum as compared to the current curriculum is planned in relation to time and cost factors. With the assistance of the business office of the School of Nursing, data will be collected on the cost of alternative rotation patterns being suggested, cost per credit of the major units of the curriculum, average cost per student and instructional alternatives which will increase achievement and reduce cost. Plans are currently being made to computerize much of the data which will help in the evaluation of these factors.

Instructional methods

Data will be gathered in relation to the use of types of classroom interaction and levels of questioning, and how these factors are related to attainment of the objectives.

Curricular process

Through an analysis of committee meeting minutes, data will be

gathered in relation to the following questions: 1) What forces helped bring about the change? 2) What forces acted as barriers or modifying factors? 3) How were the decisions made? 4) What were the communication networks? 5) What were the problems arising from multiple decision makers relating to the same decision? 6) What were the problems arising from the interdependency of decisions? Administrative reorganization of the school is occurring and this is the subject of a separate study. This data may assist us in determining additional administrative effects. Although some aspects of the process evaluation are already being conducted, this stage of evaluation will continue throughout the grant period.

Product evaluation

Product evaluation provides the data necessary to assess the extent to which objectives are being attained. Evaluation of the achievement of students in the current curriculum may be seen as product evaluation. This was discussed as input into the context evaluation which assisted our school in making a decision to change our curriculum. This interrelationship is illustrated in the model by a feedback line from product evaluation into context evaluation.

The fifth aim of the grant is to evaluate the contribution of the revised curriculum. As has been discussed earlier, testing of students as they enter and graduate from the revised curriculum is planned. Data will continue to be collected from student records. Faculty will be tested. Although there will be no opportunity to evaluate the performance of graduates from the revised curriculum during the grant period, it is hoped that another grant will be approved for continuation of the evaluation.

Summary

The first part of this paper presented an overview of some major theoretical issues in curriculum evaluation: definitions of evaluation, research versus evaluation, models of evaluation, range of the data to be included and the number and types of personnel. We have chosen Gephart's model as the model to guide the course of the evaluation program. In the second part of the paper some factors within our situation that have modified the scope and rigor of the evaluation were discussed. These included: limited grant funds, time factors in the actual situation, school and state budgets, and consultation quests. In the final section an overview of the progress and problems in the evaluation program is summarized in relation to the parts of the model.

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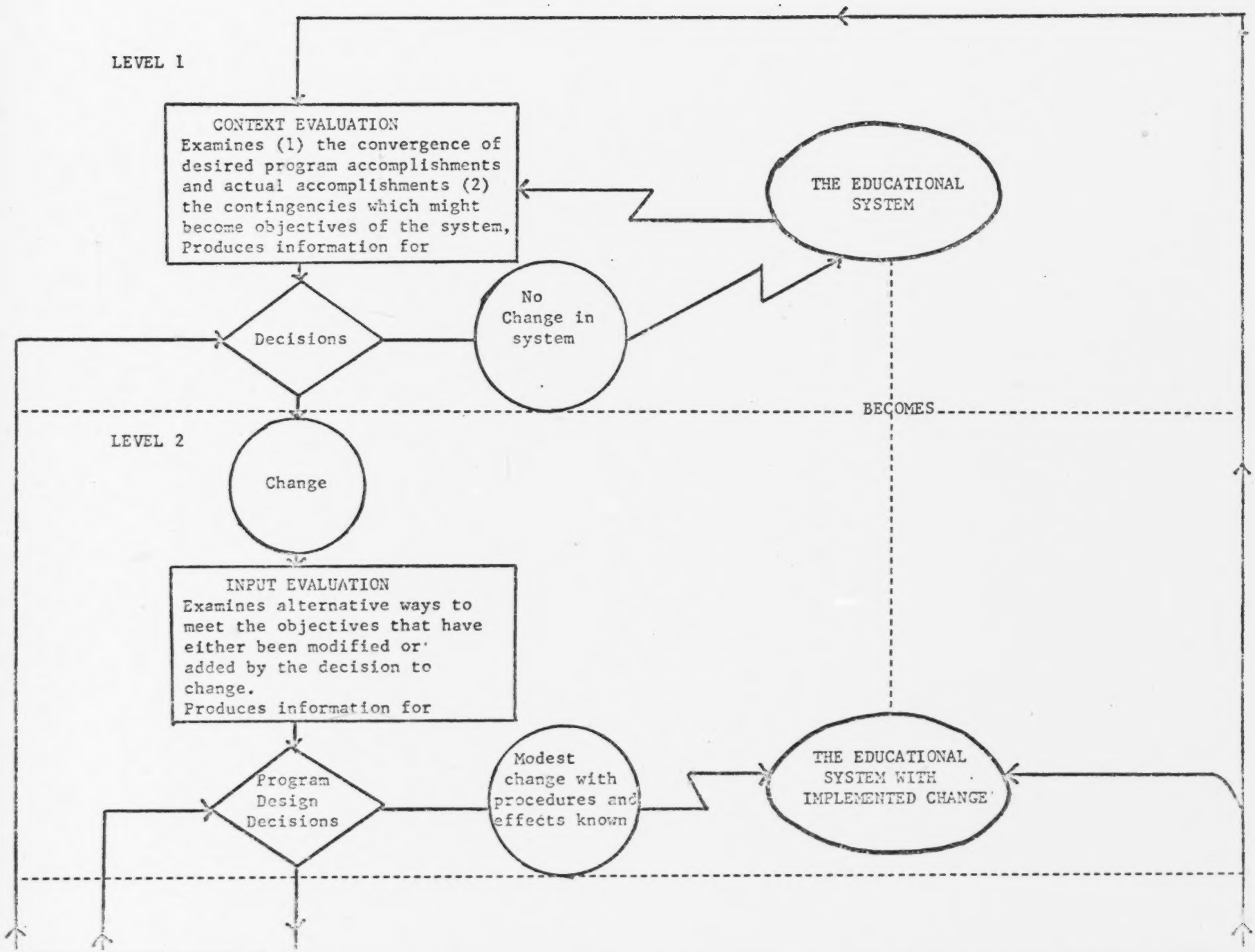
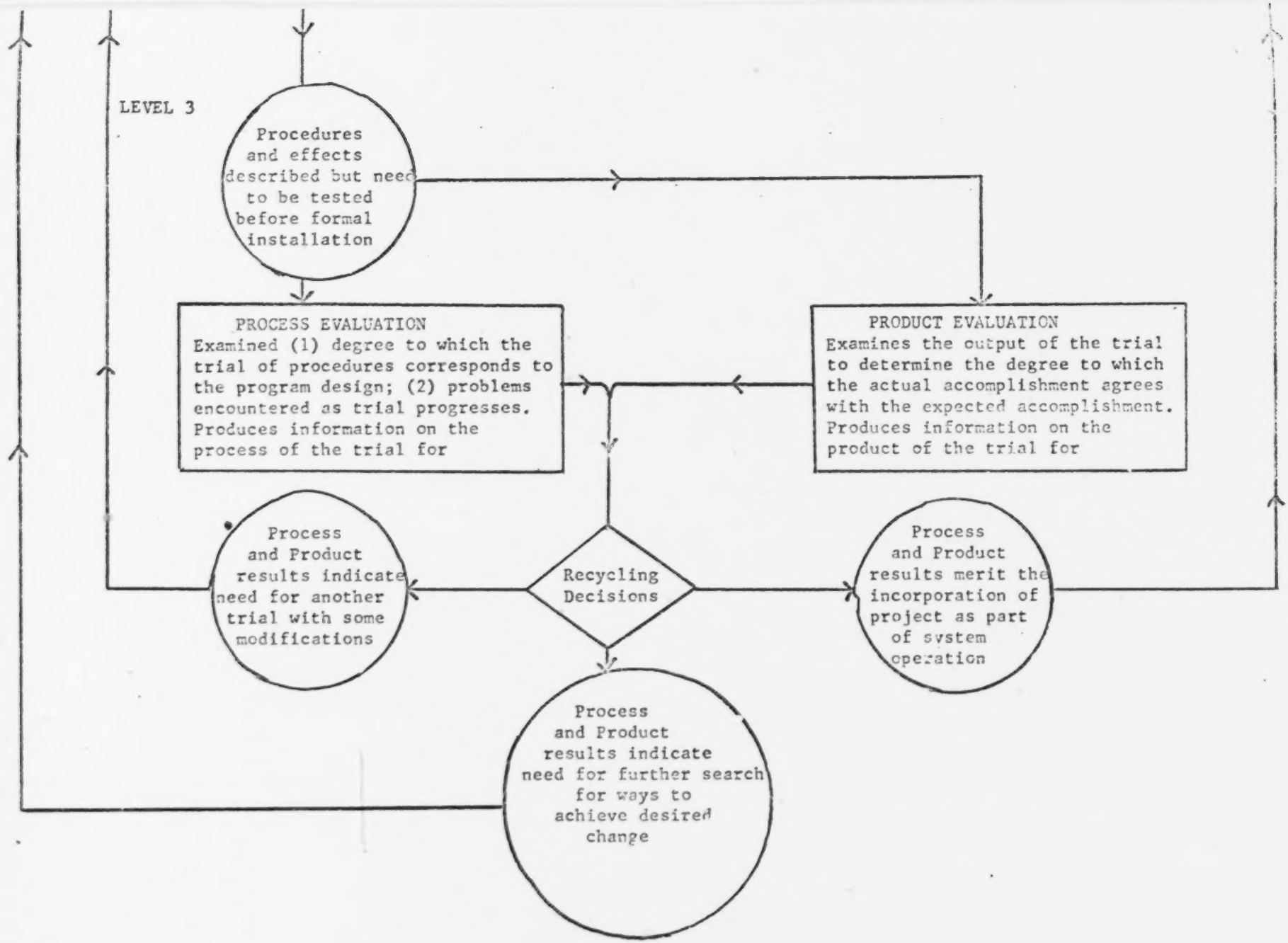

LEVEL 1
CONTEXT EVALUATION
Examines (1) the convergence of desired program accomplishments and actual accomplishments (2) the contingencies which might become objectives of the system,
Produces information for
THE EDUCATIONAL SYSTEM
Decisions
No Change in system
BECOMES
LEVEL 2
Change
INPUT EVALUATION
Examines alternative ways to meet the objectives that have either been modified or added by the decision to change.
Produces information for
Program Design Decisions
Modest change with procedures and effects known
THE EDUCATIONAL SYSTEM WITH IMPLEMENTED CHANGE


LEVEL 3
Procedures and effects described but need to be tested before formal installation
PROCESS EVALUATION
Examined (1) degree to which the trial of procedures corresponds to the program design; (2) problems encountered as trial progresses. Produces information on the process of the trial for
PRODUCT EVALUATION
Examines the output of the trial to determine the degree to which the actual accomplishment agrees with the expected accomplishment. Produces information on the product of the trial for
Process and Product results indicate need for another trial with some modifications
Recycling Decisions
Process and Product results merit the incorporation of project as part of system operation
Process and Product results indicate need for further search for ways to achieve desired change